INDUSTRIAL DATA PROCESSING APPLICATIONS REPORT

Applications	Production and Inventory Control, Pulp Wood Settlements, Surveying, Charting, Graphing
Type of Industry	Forest Products Manufacturer
Name of User	St. Regis Paper Co. Kraft Div. Jacksonville and Pensacola, Fla.

Equipment Used	IBM System/360 Model 40, 1401G, 357 Data Collection System, 1130

Synopsis

St. Regis Paper Co.'s Kraft Div. is using computer equipment at its main Kraft Center in Pensacola, Fla., and at one of its mills about 300 miles to the East in Jacksonville, Fla. The EDP operations are presently separate from each other, but there are plans to link the activities.

Basically, at present, Pensacola is using more sophisticated equipment for production and inventory control applications while at Jacksonville, card and paper tape oriented systems are handling pulp wood settlements, surveying, charting and graphing applications.

St. Regis Paper Co. was founded at Deferiet, N.Y., an Upstate community located in the Adirondack mountain woodlands, to manufacture newsprint from the plentiful supply of spruce trees in the area. Operations began in 1901 with two paper machines, and since that time St. Regis has grown into a company with net sales in excess of $600 million, ranking it among the 100 largest corporations in the United States. Along with this growth in net sales has been the expansion in the amount of timberland the firm owns or controls -- that figure now stands at over 5 million acres in 13 states and Canada. Pulp and paper are made in the East, South, Midwest and on the West Coast.

A broad range of products such as pulp, paper, shipping containers, bags, consumer products, packaging, plastics and wood products are manufactured by St. Regis. As a major producer of primary paper materials, St. Regis' 18 paper mills can produce 1.6 million tons of paper and paperboard a year.

Three major computer systems are used at St. Regis' Pensacola and Jacksonville sites. At present, they are basically unrelated; however, their uses will be linked to some degree in the future.

THE SYSTEM AT PENSACOLA

An IBM System/360 Model 40 is used as the hub of a production and inventory control system at the Kraft Div.'s Kraft Center in Pensacola. It operates 24 hours a day, seven days a week. A 357 data collection system, to capture original source data, operates in conjunction with the Mod 40 to capture, accumulate and store information necessary for management to have more effective control over production.

Data from the order department, the technical department, the mill order and production department, the various stages of the production process, and shipping is fed into the System/36 by IBM 357 data collection systems, constantly updating the information files. These files conta customer data, item information, inventory status, routing, carrying and shipping information, and other data pertinent to production. The system employs the concept of storing and providing standard order data.

The production and inventory control system starts with a customer order and proceeds through all the various stages of production to the shipment of the order.

Reports are prepared as of 7 a.m. -- the close of third shift -- and are ready for management review between 8 and 10 a.m. The various daily, weekly, and monthly reports are prepared for manufacturing management, the order and production, quality and technical, traffic, billing and inventory, and accounting departments. These reports are aids to management in controlling the mill and in monitoring production variables.

Centralized control has been achieved through the billing and inventory control department. All information entering the system and all output from the system clear through this department.

Orders are transmitted from district sales offices by Teletype. All orders that are to be filled by the Kraft Div. have either an F or P prefix. They are received by the mill message center and the mill order and production department, and by the St. Regis central order and production center in New York. Orders are numbered by sales office location for control purposes. Periodically, a check is made to verify that all orders have been received by the three locations.

Production and Inventory Control Editor

Orders are delivered to the production and inventory control editor throughout the day. A second copy is sent to the traffic department. The order editor records the control number in a visible binder, which is organized by numerically preprinted pages for each sales office.

The order editor verifies that an order data sheet exists for every order received. An order data sheet is maintained for every customer, every grade that the customer orders, and for the basis weight or caliper within that grade. Grade applies to the major application, finish, and color of paper. Basis weight is the weight of 500 sheets of a ream 24 x 36 in. Caliper is the thickness of the paper.

The order data sheet contains customer data, invoicing instruction, and mill, wind and splice, finishing, loading, shipping, sample, and miscellaneous instructions. The order editor checks the customer code, grade code, basis weight, and/or caliper shown on the order against the corresponding data on the order data sheet. He also verifies customer name, pricing, routing terms, f.o.b. point, cash discount, and all notes. Kraft currently maintains over 2,600 order data sheets. The information from all the order data sheets is contained in the order data file. Also included in the order data file are instructions for invoicing, mill, wind and splice, finishing, stencil, loading, shipping, sample and miscellaneous.

As the order editor receives each order copy, he determines the number of order items (items of different size of the same grade and basis weight) and the number of different basis weights included in the order. Orders can contain multiple basis weights but should not contain more than one grade.

If the order does contain more than one basis weight or grade of paper, an order transcript must be prepared for each grade and basis weight on the order. If an order being processed does not have a corresponding order data sheet, the mill order and production department is advised to expedite an order data transcript sheet. The order editor will not process this order until this sheet is received from mill order and production.

The order data transcript sheet is partially completed by mill order and production. It is forwarded to the technical department where the manufacturing grade code, basis weight or caliper, specification code, and sample instructions are filled in. The traffic department then completes the shipping route instructions, delivering carrier, and address.

The transcript sheet is sent to the order editor for completion. He fills in the customer code, invoicing instruction, and other applicable codes and verifies all the other data. Order data cards are then keypunched and the order data file is updated with the new record.

If the order being processed has data that does not agree with the order data sheet, mill order and production is contacted, and the exception condition is recognized as being either temporary or permanent. Where the exception is considered to be a permanent change, the order data sheet is corrected. Temporary changes are made on the order entry transcript sheet.

When an order is ready for processing, the order entry transcript sheet is prepared by the order editor. He assigns an order control number to the transcript sheet and records this number on his copy of the order for future reference. The orders are then filed by sales district and order number. The order entry transcript sheets are accumulated and sent to the keypunch section three or four times daily. An adding machine tape for the number of line items is attached to each group of transcript sheets. A line item represents any one item on the order that is of a different size. The transcript sheets and adding machine tapes are returned to the order editor and held until a listing of the line item cards, showing card count, is compared to the total of the adding machine tapes. All orders are batch processed at 5 p.m. daily. Kraft processes an average of 54 orders per day.

Order Processing

The order entry cards are processed through the System/360. They are matched against the order data file by customer code, grade code, basis weight, and caliper. Line item, trim, and schedule cards are punched for each order. For each line item, a line item and trim card are punched. A schedule card is punched for each order.

Data for each line is maintained in random sequence in the line item file. Kraft maintains information on approximately 3,000 items. Information for the line item card is accessed from this file.

The trim card is used as input to the trim program, which takes place at a later stage in the procedure. The trim card contains the customer order number, the width ordered, the number of rolls ordered, and the diameter of the rolls ordered.

The schedule card contains the order number and is used to transmit the assigned machine number from mill order and production to the data processing center.

The line item, trim, and schedule cards are used to prepare the daily order spread sheet, which shows all items scheduled for production by grade code, basis weight, and/or caliper. This spread sheet is forwarded to mill order and production.

Mill Order and Production

As mentioned previously, customer orders are also received in mill order and production. The orders are edited, and if any discrepancies are apparent, the editor checks with the district sales office that sent the order. Copies of the orders are retained for mill order and production, the production scheduler, and the open order file. A copy is forwarded to finishing and shipping.

The daily order spread sheet received from the data processing center is used as a reference. The line item, trim, and schedule cards are placed in a hold file.

Each week the St. Regis central order and production department in New York sends a schedule to Kraft. It indicates the orders that will be produced by Kraft. (In a few instances, the orders are tranferred to another location.) Mill order and production prepares a manual spread sheet after receiving this schedule. It is the first step in scheduling mill production by basis and grade. For example, it forecasts the number of orders for various weights by type (natural, refinished, etc.).

From this, a tentative manufacturing schedule is prepared showing tons, grade and basis weight, customers that are scheduled, hours per job, and the "breaking" or date of completion. During the preparation of this manufacturing schedule, mill order and production decides which machine will be used for each order. The machine number is punched into the schedule card, and the card is transmitted to the data processing center.

The trim cards are forwarded to the data processing center for the preparation of the trim sheet by the System/360.

Trim Program

This program solves the problem of filling, at a minimum cost, customer orders for given widths and diameters of rolls from a supply of given stock widths, each of a given cost.

Trim is a Fortran code written for the System/360. It accepts 15 stock widths, each with supply limits, and up to 60 ordered widths in its present form. Standard card input and printer output are used, and two scratch discs (or tapes) are needed for intermediate storage.

The program is oriented specifically to the trim problem as it occurs in the paper industry. In paper manufacturing, the order unit is a roll of paper. Machines are available, each of which produces rolls of a particular width at a certain cost and speed per roll. As the machine produces the paper, or reel, knives are set that cut the paper into the widths, or rolls, that were ordered. The number of rolls for each order is called a set.

Input data for a single job consists of four types of cards:

(1) Job description card. This card is keypunched by mill order and production and is coded alphanumerically to identify the particular job.

(2) Machine description card. Also keypunched by mill order and production, this card describes each machine or standard stock width from which the order is to be cut. This includes the width of the machine, the width of the trim, the cost of one roll on that machine, and the maximum number of rolls from this machine used to fill an order.

(3) Trim card. Forwarded to the data processing department by mill order and production, this card contains the customer order number, width and number of rolls ordered, and the diameter of the rolls.

(4) Parameter cards. There are eight parameters that can be set in the program, although it is not necessary to set any of them, since those not set are assigned a standard value by the program. Therefore, this card is optional. The parameters govern certain functions of the program; for example, the rounding off procedure, the running time of the trim problem, and the completion of the problem as soon as trim waste has dropped to a certain percentage of the paper required to cut the order.

A maximum number of 15 machines may be considered. The program seeks to minimize the cost of filling all orders involved in a trim session. Any number of problems may be read in a batch, and output is on the printer.

Program output is divided into five sections:

(1) A summary of the input data.

(2) The parameter values used for the problem.

(3) The trim sheet. This is the principal section and is a list of the patterns for cutting the rolls of paper. The machine on which the pattern is to be cut and the number of machine rolls to be cut in that way are indicated with each pattern along with the customers to whom these rolls are allocated. Only the rounded values of the number appear on the printout.

Extra rolls of some order widths are produced and there may be too few rolls of other widths. The program computes the number of excess or short rolls of each width and attempts to distribute these discrepancies among the customers within the allowed tolerance.

(4) The fourth section summarizes the trim by customer number, giving the number of rolls of each diameter ordered, the number produced, the excess or shortage of rolls, and the equivalent number of rolls short or over by volume.

(5) The last section is a summary of rolls that was produced over the assignable limit for this customer order.

The trim has been programed to stop automatically when further iterations will improve the solution very little. When the total trim waste (that part of a machine roll left over after the pattern is cut) has not been reduced by more than 0.1 percent of the paper required to cut order in 10 iterations, very little improvement in the situation is possible. A message is printed as soon as this condition occurs. Using the parameters, any solution can be accepted in which the trim waste is no greater than the percentage specified in the program.

Side rolls are produced under two simultaneously existing conditions: (1) capacity permits production of such rolls; and (2) the production or cutting of a side roll increases the overall trim cost efficiency involved in a given trim unit that allows only one side roll per set.

The program allows a side roll to enter a given trim only when these conditions exist. Side rolls can be placed in inventory or used by the Kraft paper bag plant.

The trim sheet is sent to mill order and production. If the trim is acceptable, the tentative manufacturing schedule then goes to the production "trimmers," who pull the line item cards. At this point, a mill order number (machine order number) is assigned and transmitted through the 357 to the data processing center. When the mill order number is received, the System/360 processes finishing and shipping instructions.

In addition to the mill order number, the edited number of pounds and rolls is punched into the line item cards. The line item cards are reproduced and sent to the weighing stations. In addition, a warehouse requisition card is punched if part or all of the order is coming from inventory. These cards are forwarded to the shipping station. Mill order and production then forwards the order information to the manufacturing department. This includes the customer order, the trim sheets, and line item cards.

Weighing Station

The data processing center prepares a set of reel cards for each machine. They are prepunched and end printed with reel numbers and are used in the preparation of roll cards.

The head roll finisher receives daily a copy of the manually prepared manufacturing schedule, finishing instructions, the trim sheet, and line item cards from mill order and production. The scaleman files the line item cards by machine order or prepares them for use, depending on the status of the current machine order. The line item cards contain St. Regis order number, shipping code, line item number, unit of measure, units and weight ordered, machine order number, roll width, and roll diameter or sheet length.

As each roll or skid of production approaches the scales, the scaleman selects the correct reel card and the line item card by St. Regis order number, machine order number, roll width, and diameter (or sheet length) for the transaction. The trim sheet indicates this information. Variable data (roll number, position, etc.) is keyed into the 372 keyboard of the 357 data collection system. The line item and the reel card are inserted in the 357 card reader.

As each roll is weighed, three production cards are prepared by the 026 keypunch in the 357 data collection system. These cards contain customer order number, line number, diameter position, machine order number, width, set, roll number, weight, reel number, shift, and date. Two of the production cards are physically attached to each roll as it goes to the shipping station. The third production card is used to transmit production statistical information to the data processing center. The card is kept at the weighing station.

The scaleman also reports lineal feet, when needed, reel statistics, and estimated production to be rewound at 7 a.m. Reel statistics are recorded by a Port-A-Punch card supplied by the technical department. These statistics include machine number, reel number, time of turnup, machine speed, average basis weight, average moisture, and average reel trim. After the last roll from the reel has been weighed, this card is used to transmit the statistical information to the data processing center.

All of this information is maintained on the reel and roll files.

Shipping Procedures

The shipping department receives daily a copy of the shipping order, shipping instructions, machine order and all warehouse requisition cards scheduled by mill order and production. From the data processing department, a set of master carrier cards is sent to shipping. These are Port-A-Punch cards and are prepunched and printed with the carrier initials. All shipping information is available from the shipping files.

When a boxcar or truck trailer is selected for loading an order, the shipping clerk pulls a master carrier card with the matching carrier initials and punches the vehicle's number into the first six positions. After the last item (roll or skid) is loaded, the shipping clerk punches the first seal number and, as in the case of a boxcar, the second seal number. He then gives this card to the headloader to transmit through the 357 to the data processing center. This indicates that the vehicle is loaded and a manifest can be prepared.

The data processing center prepares shipping manifests on loaded vehicles every two hours and delivers them to the shipping department.

As each roll or skid is received from production, the headloader removes one production card from the roll if it is being shipped or stored as stock inside. Both production cards are removed if the roll or skid is to be stored as stock outside.

The production and carrier cards are transmitted to the data processing center through the 357. Variable information, such as weight, location, damage and dunnage, and skid number are transmitted through the 372 keyboard.

When rolls or skids of numbered rolls are to be shipped from inventory, warehouse requisition cards will have been supplied to the shipping department by order and production. The headloader selects the correct warehouse requisition card for use in this transaction. He then pulls the appropriate production card from the inventory file and, with the carrier card, transmits the information to the data processing center. Variable information is transmitted through the 372 keyboard.

When the headloader receives the carrier card with seal numbers punched in it, he selects a seal card which is furnished by the data processing department. He inserts the carrier card and the seal card in the 357, transmitting this information to the data processing department. Variable information is transmitted through the 372 keyboard.

These procedures assure the Kraft plant that all shipments are accounted for through the entire shipping process.

Quality Control

At several points during the manufacturing process, the paper being manufactured is checked for quality standards.

After paper leaves the manufacturing department, the quality control test station checks the paper test specifications. For each grade code and basis weight, these specifications include a minimum and maximum tolerance test for such things as brightness, ink penetration, percentage of moisture, porosity, smoothness, stretch and tear. The specifications are established by the technical department.

The information punched in the reel statistics card, such as average basis weight and average moisture, is processed daily to generate an off-quality report. This report is also prepared monthly. It shows for each grade code and basis weight the total pounds produced, the total pounds that were off quality, the percentage, the reason for off quality, the way that this was determined, and the disposition of the paper reported.

Since the system was installed, the reduction of errors in reporting off-quality paper has increased management's control of quality.

Management Reports

The production inventory and control system provides many reports that are valuable aids to management in controlling the Kraft Div. operation. The accurate information reported through the system assures management of receiving more accurate reports. Keeping all records stored within the System/360 means continual updating of information and reports that are current. Following are descriptions of the major reports in the areas of manufacturing, inventory and accounting:

a. Manufacturing

(1) The daily production report. The total production, by machine, for each grade and basis weight is shown on this report, which allows close monitoring of the production variables, particularly in the paper mill.

(2) The daily variance report. The standards, production in tons, averages, and variance in hours are included in this report. Like the production report, the daily variance report allows close monitoring of the production variables. It is also prepared monthly.

(3) The daily lost-time report. The downtime chargeable by type, location, and cause is shown on the lost-time report. This report enables management to pinpoint production time lost and to take action to prevent it from recurring.

b. Inventory

(1) The daily consigned inventory report. All regular inventory information and the "manufactured-for" company and destination are included in this report.

(2) The daily noncommitted inventory report. The total value of all inventory that has not been committed, including weight and location, is shown on this report. Off-quality stock is also included.

A monthly inventory report is also prepared.

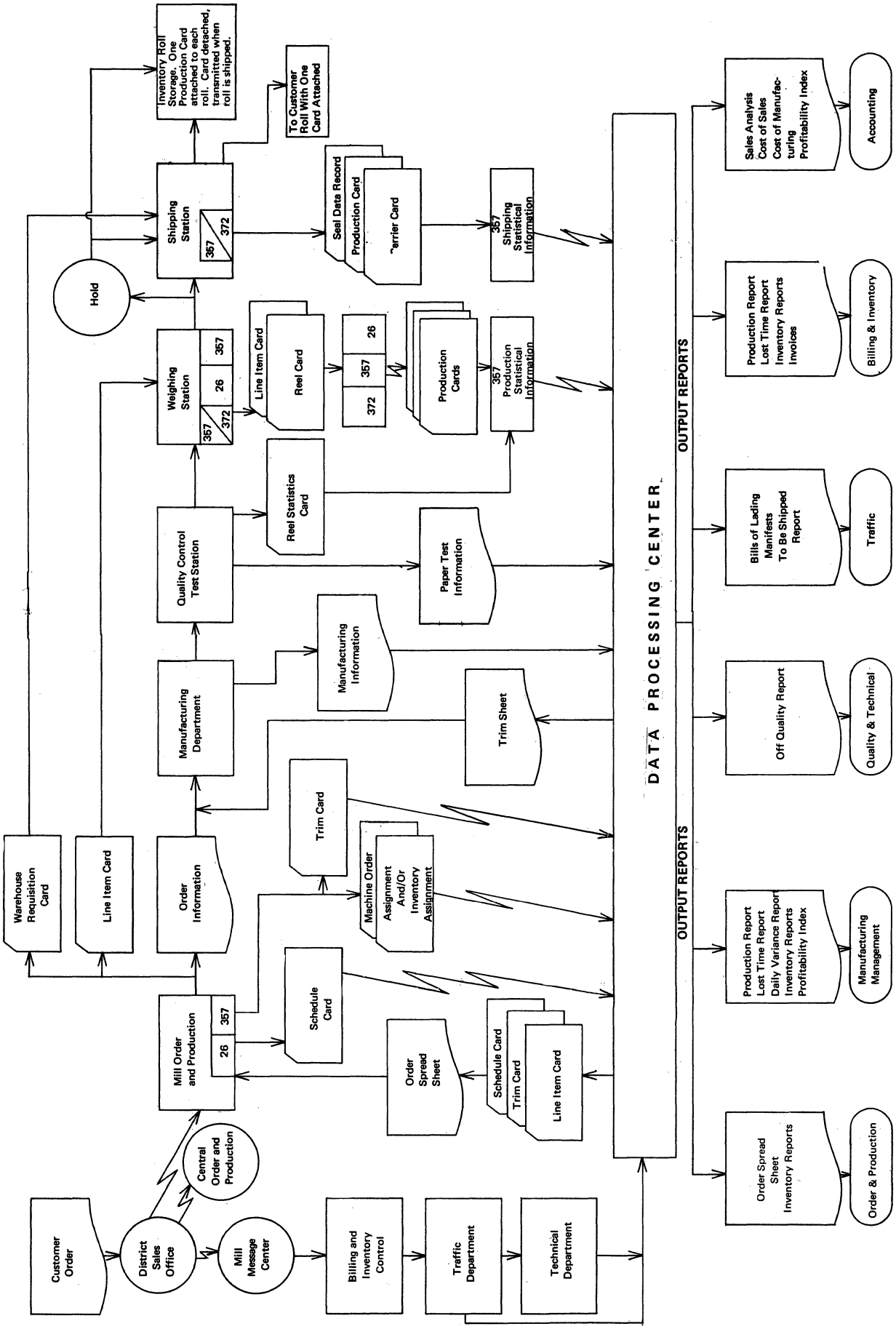
c. Accounting

(1) The weekly sales report. The gross sales, total deduction and net sales, as well as the total pounds, are included. This report is prepared monthly.

(2) The standard cost of sales report. The material and conversion costs are shown on this monthly report.

(3) Profitability index report. Management regards the profitability index as a valuable measure of performance.

Other reports, such as the loading tally and manifest, the standard cost of manufacturing, bills of lading, and customer invoices, are also prepared with the system.



THE SYSTEM AT JACKSONVILLE

1401G System

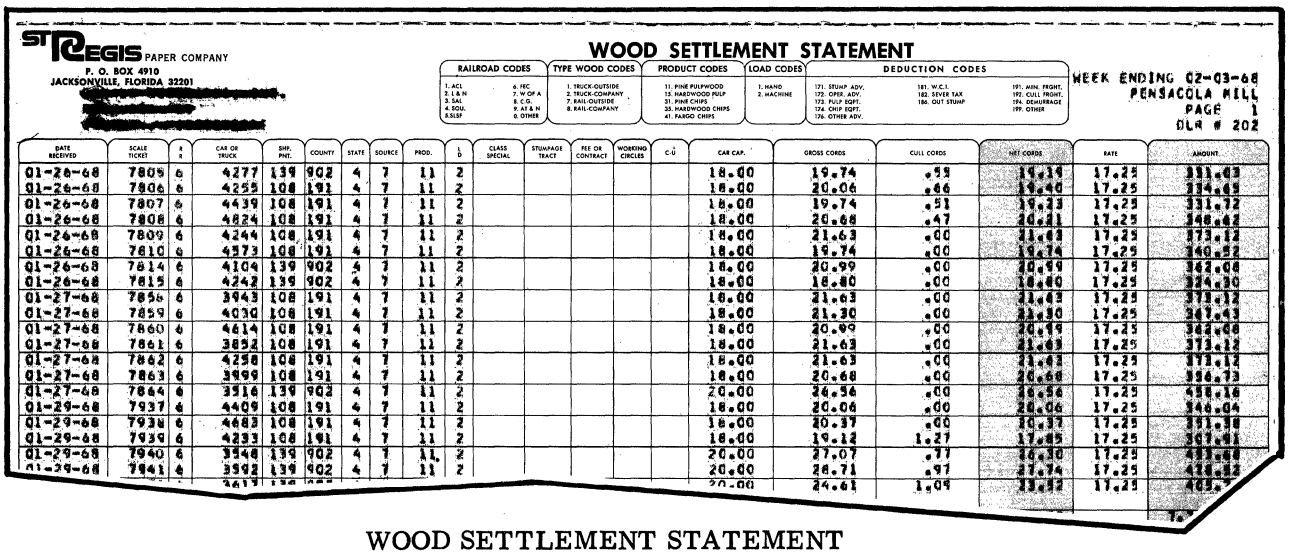
The 1401G system--a card-oriented system--in use at Jacksonville has a 4K character memory, a 1402 card/reader punch that operates at 450 cards per minute, a 1403 printer with a 450 line per minute speed, an 085 collator and two 083 sorters. The system is utilized two shifts a day, five days a week, and the dp staff includes a data processing manager, two operator one operator/programer and four keypunchers.

One non-accounting application handled on the 1401G is pulp wood settlements.

The Woodlands Div. at Jacksonville handles all negotiations with outside dealers, the people who cut, load and transport wood to the mill. When the wood is received, data is recorded on scale tickets and bills of lading and these form input for the punched cards which are utilized in the 1401G system. A number of management reports results from these cards.

A weekly allotment report shows the amount of wood allotted to a particular dealer to ship to St. Regis at a given time. The weekly pulp wood report records actual cords of wood received that week, and this report is ticketed for the Woodlands accounting department. A weekly stumpage sales report explains divisional transfer of money from Kraft Div. to Woodlands thus, it indicates how much Kraft should pay Woodlands for the pulp.

Prior to writing checks from the punched card data, a settlement to the dealer is run from what has been received from him--type of wood, etc. A detailed list of what will be covered by the check he's getting is also included. A wood settlement statement goes to the dealer weekly. It includes such data as: date material received, scale ticket, weight, rate of payment, amount of payment and all deductions from gross amount due him. These deductions include taxes and freight.



ST REGIS PAPER COMPANY
P. O. BOX 4910
JACKSONVILLE, FLORIDA 32201
[redacted]

WOOD SETTLEMENT STATEMENT

RAILROAD CODES		TYPE WOOD CODES	PRODUCT CODES	LOAD CODES	DEDUCTION CODES		
1. ACL	6. NC	1. TRUCK-OUTSIDE	11. PINE PULPWOOD	1. HAND	171. STUMP ADV.	181. W.C.I.	191. MIN. FRGHT.
2. L & N	7. W OF A	2. TRUCK-COMPANY	15. HARDWOOD PULP	2. MACHINE	172. OPER. ADV.	182. SEVER TAX	192. CULL FRGHT.
3. SAL	8. C.G.	7. RAIL-OUTSIDE	31. PINE CHIPS		173. PULP EQPT.	186. OUT STUMP	194. DEMURRAGE
4. SOU.	9. AT & N	8. RAIL-COMPANY	35. HARDWOOD CHIPS		174. CHIP EQPT.		199. OTHER
5.SLSF	0. OTHER		41. FARGO CHIPS		176. OTHER ADV.		

WEEK ENDING 02-03-68
PENSACOLA MILL
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DLR # 202

DATE RECEIVED	SCALE TICKET	A R	CAR OR TRUCK	SHP. PNT.	COUNTY	STATE	SOURCE	PROD.	L D	CLASS SPECIAL	STUMPAGE TRACT	FEE OR CONTRACT	WORKING CIRCLES	C-U	CAR CAP.	GROSS CORDS	CULL CORDS	NET CORDS	RATE	AMOUNT
01-26-68	7805	6	4277	139	902	4	7	11	2						18.00	19.74	.93	18.81	17.25	311.63
01-26-68	7806	6	4255	108	191	4	7	11	2						18.00	20.06	.66	19.40	17.25	334.65
01-26-68	7807	6	4439	108	191	4	7	11	2						18.00	19.74	.51	19.23	17.25	331.72
01-26-68	7808	6	4824	108	191	4	7	11	2						18.00	20.68	.47	20.21	17.25	348.62
01-26-68	7809	6	4244	108	191	4	7	11	2						18.00	21.63	.00	21.63	17.25	373.12
01-26-68	7810	6	4573	108	191	4	7	11	2						18.00	19.74	.00	19.74	17.25	340.52
01-26-68	7814	6	4104	139	902	4	7	11	2						18.00	20.99	.00	20.99	17.25	362.08
01-26-68	7815	6	4242	139	902	4	7	11	2						18.00	18.80	.00	18.80	17.25	324.30
01-27-68	7856	6	3943	108	191	4	7	11	2						18.00	21.63	.00	21.63	17.25	373.12
01-27-68	7859	6	4030	108	191	4	7	11	2						18.00	21.30	.00	21.30	17.25	367.43
01-27-68	7860	6	4614	108	191	4	7	11	2						18.00	20.99	.00	20.99	17.25	362.08
01-27-68	7861	6	3852	108	191	4	7	11	2						18.00	21.63	.00	21.63	17.25	373.12
01-27-68	7862	6	4258	108	191	4	7	11	2						18.00	21.63	.00	21.63	17.25	373.12
01-27-68	7863	6	3999	108	191	4	7	11	2						18.00	20.68	.00	20.68	17.25	356.73
01-27-68	7864	6	3516	139	902	4	7	11	2						20.00	24.56	.00	24.56	17.25	423.18
01-29-68	7937	6	4409	108	191	4	7	11	2						18.00	20.06	.00	20.06	17.25	346.04
01-29-68	7938	6	4683	108	191	4	7	11	2						16.00	20.37	.00	20.37	17.25	351.38
01-29-68	7939	6	4233	108	191	4	7	11	2						18.00	19.12	1.27	17.85	17.25	307.91
01-29-68	7940	6	3948	139	902	4	7	11	2						20.00	27.07	.77	26.30	17.25	453.68
01-29-68	7941	6	3992	139	902	4	7	11	2						20.00	28.71	.97	27.74	17.25	478.52
			[illegible]												20.00	24.61	1.09	23.52	17.25	405.72
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WOOD SETTLEMENT STATEMENT

Monthly reports include one on wood received from each county within the Southeast District covered by the Jacksonville mill and a combined ledger report for accounting which includes all data on sales, orders, etc.

357 Data Collection System

The finishing and shipping department at the Jacksonville plant is using 357 data collection devices to improve shipping manifests, production records and records of specifications of Kraft paper and linerboard. Punched cards automatically enable inventory control to determine immediately the day's production and simultaneously to print accurate shipping manifests.

The ordering process for the customer's rolls has not changed. The production weigher and the shipping clerk each receive orders on punched cards which include the customer, production and mill order number for each roll size.

After the rolls have been stenciled and strapped, they move on a conveyor to the production center. There a master card with the production information is fed into the 357. The reel and roll numbers and linear feet are keyed in by the weigher, and the weight of the roll is automatically recorded. At this point the production weigher writes the weight on the roll and checks to see if the roll will be shipped or rejected.

The 357 then prints two cards--one of which is attached to the roll for the shipping clerk and the other put in a box for data processing to run the day's production. The roll continues by conveyor to the shipping dock where the shipping clerk loads the boxcars. He takes the cards from the rolls and collects all the cards for each car. Once the car is filled, he inserts all the cards into an IBM 402 which prints a manifest for the order, calculating the total linear feet, number of rolls and tonnage.

In the future the cards may be sent along to the customer with the order so that he can use them in his computer to determine his production as each roll is used.

1130 System

The 1130 in use in Jacksonville is a paper tape-oriented system. The unit includes 4K characters of memory with one disc. A 1055 paper tape punch punches 14.8 characters per second and an 1134 reader reads 60 columns per second. An IBM 1627--actually a CalComp--plotter is a 100-increment plotter. The 1130 is used for surveying, preliminary mapping and charting and graphing.

Four people use the system--all operator/programers--one shift, five days a week.

Company lands are surveyed. Data is input from surveying journals used in the field; and the information is punched into the paper tape and fed directly into the control keyboard of the 1130. Output is on the plotter, which is used to help the company solve minor disputes with adjoining owners of company-held land.

In preliminary mapping, charting and graphing, coordinates stored in the computer are retrieved from memory and output on the plotter. A modified COGO program is used.

St. Regis chose the paper tape orientation for the 1130 because it was the cheapest way to input the data.

RESULTS AND FUTURE PLANS

At Pensacola, the overall benefit has been increased management control. The production inventory control system is a valuable aid to the control of production operations at the mill. In addition, it serves as an accounting tool, providing financial information to aid in cost control and sales decisions. The system has proven its value as an aid in decision-making by operating management.

At Jacksonville, however, the current systems in use will be replaced. The Jacksonville mill will adopt Pensacola's production and inventory control system to a System/360 Mod 30 to be installed. One use of the 360/30 will be in a hook-up to a system installed at the Univ. of Georgia in Athens, Ga. At present, UG is preparing a continuous forestry inventory for Jacksonville from data which the latter sends to Athens. When the 360/30 is installed, a 2701 controller at the St. Regis end will have a remote terminal tied in at the UG end. St. Regis will transmit data for the Woodlands Div. to Athens and the UG will calculate the input and transmit it back to Jacksonville.

The 1130 in use will also be phased out, except for the plotter which will be linked to the 360/30. According to the company, the Mod 30 will give it more versatility in printing bearings, distances and coordinate numbers in printout form, allowing St. Regis to go to a better draw program.